

# **EPA Comments and Responses on Draft (dated September 27, 2021) and Revised (dated November 11, 2021) Stormwater and Riverbank Assessment and Sampling Plan Swan Island Basin Project Area**

**Comments dated November 19, 2021**

This is U.S. Environmental Protection Agency's (EPA's) conditional approval of the Stormwater and Riverbank Assessment and Sampling Plan (SRASP) for the Swan Island Basin (SIB) Project Area. The SRASP was prepared by Hydrogeologic, Inc. on behalf of the SIB Remedial Design Group (SIB Group) and dated November 11, 2021. Approval is conditioned on the SIB Group adequately addressing EPA's responses as described below.

## **EPA Comments on the SRASP**

Unless otherwise noted, the SIB Group's responses to EPA's comments on the Draft SRASP and the Revised SRASP are acceptable. However, clarification and supplemental information is provided below for the following comments: General Comment 1; Specific Comments 2, 4, 15, 16, 17a, 18, and 23a.

### **EPA General Comment 1 (10/22/2021)**

**Traffic Control:** A traffic control plan should be included in the SRASP or as an attachment to the health and safety plan (HASP) in the SIB RD Group's Pre-Design Investigation (PDI) Work Plan.

Reconnaissance of proposed stormwater sampling locations during the September 22, 2021 site visit revealed that some of the proposed sample locations are at manholes that are located within streets with vehicle traffic. These locations will require traffic control to allow for safe sampling, and procedures for traffic control that are consistent with local requirements should be provided for EPA review prior to sampling in the SRASP or HASP attachment.

#### *SIB Group Response (11/11/2021)*

Noted. Traffic control plans (TCPs) will be provided for locations requiring them. The TCPs will be attached to the HASP in the PDI Work Plan or the updated SRASP and will be provided to EPA review prior to equipment deployment and sampling.

#### *EPA Response (11/19/2021)*

Comment addressed, pending EPA's review of the TCPs before the start of sampling.

### **EPA Specific Comment 2 (10/22/2021)**

**Section 2.1 Stormwater Discharge, page 2-1:** Sediment management area (SMA) refinement needs to consider both surface and subsurface sediment exceedances of all remedial action levels (RALs) applicable outside of the navigation channel and principal threat waste (PTW) thresholds (see Remedial Design [RD] Principle #1 in Section 1.4 of EPA's Remedial Design Guidelines and Considerations [RDGC]).

#### *SIB Group Response (11/11/2021)*

Noted.

*EPA Response (11/19/2021)*

While accurate, this was not an EPA comment on the SRASP.

**EPA Specific Comment 2 (10/22/2021)**

**Section 2.1 Stormwater Discharge, page 2-1:** Revise the text to clarify that source control authority has been transferred to EPA for select sites, including the U.S. Coast Guard Facility and the US Navy and Marine Reserve Center.

*EPA Response (11/19/2021)*

This EPA comment was missing from the SIB Group's response to comments table. Provide the clarification in future documents.

**EPA Specific Comment 4 (10/22/2021)**

**Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-1:** Section 3.1 indicates that in-line sediment trap samples will be composited into two separate sampling periods: the wet season from November through March, and the dry season from July through October. However, Section 4.1.5 states that in-line sediment trap sample bottles will be removed and replaced at the end of January, April, and June for compositing and analysis representing wet season accumulation, and that bottles will be deployed in June until October to represent dry weather accumulation. The SRASP should clarify the sampling period that are planned and indicate whether they correspond with wet or dry periods. Also indicate whether the dry-weather sampling period may be terminated early, in the event of predicted wet weather prior to the end of October that is common in Portland.

*SIB Group Response (11/11/2021)*

Section 3.1 has been revised to include this text: level-velocity loggers and in-line sediment traps will be installed in sub-basin laterals to the manholes to collect continuous data that will be composited into two separate sampling periods (wet season from December 2021 through June 2022 and dry season from July through October 2022) for comparison to the data collected during the three individual HVS storm events. The dry season deployment may be terminated early if wet weather before the end of October is predicted.

*EPA Response (11/19/2021)*

Section 4.1.5 states that sample bottles will be removed and replaced at the end of February, April, and June 2022 for compositing and analysis of wet season accumulation. This suggests that the three bottles will be composited together as a single sample for a lab analysis. EPA's conditional approval assumes that the intention is that the February and April bottles will be frozen until June bottles are retrieved; and then one composite of the three samples will be made into a single sample for lab analysis. If this is not the case, a field change request may be submitted to clarify the approach.

**EPA Specific Comment 15 (10/22/2021)**

**Section 3.2 Riverbank Characterization, No. 2, page 3-5:** The text states that data for the BANCS analysis will be collected in, "up to 150 transect locations" (emphasis added). Clarify what conditions would preclude data collection at the 150 transects identified on Figure 3-2.

### *SIB Group Response (11/11/2021)*

A total of 150 transects were selected for initial planning purposes. The actual number of transects has been updated to be 126. Text revised to read, "...riverbank soil sampling for chemical characterization will be performed at 126 riverbank transect locations (see Figure 3-2)".

### *EPA Response (11/19/2021)*

The text in the Revised SRASP does not match the text indicated in the SIB Group's response. The Revised SRASP text retains some language from the Draft SRASP: "...up to 126 locations." EPA's conditional approval assumes the language in Section 3.2 was intended to match the language in the SIB Group's response and that chemical characterization will be performed at 126 riverbank transect locations.

### **EPA Specific Comment 16 (10/22/2021)**

**Section 3.2 Riverbank Characterization, bulleted list, page 3-6:** Revise the text to include a discussion of situations where a contaminant that is not included in ROD Table 21 exceeds a ROD Table 17 riverbank soil CUL (EPA 2017). When the ROD CULs are exceeded, EPA recommends a lines of evidence approach to evaluate whether the RAO can be achieved by the planned action.

### *SIB Group Response (11/11/2021)*

The bullets have been revised as follows:

- If ROD Table 17 COC concentrations are less than the CULs, no action will be necessary.
- If ROD Table 17 COC concentrations are above the CULs, the vertical and lateral extent of the exceedances will be delineated, a BANCS analysis (or equivalent) will be performed, and a lines of evidence approach will be presented to evaluate whether RAO 9 can be achieved by a planned action.
- If ROD Table 21 focused COC concentrations are between the CULs and the RALs, the vertical and lateral extent of the exceedances will be delineated, a BANCS analysis (or equivalent) will be performed, and the RD for the riverbank will be designed to resist erosion (e.g., from stormwater runoff, tidal fluctuations, propeller wash).
- If ROD Table 21 focused COC concentrations exceed the RALs, the vertical and lateral extent of the exceedances will be delineated, a BANCS analysis (or equivalent) will be performed, as noted above, and the RD for the riverbank will be designed to resist erosion (e.g., from stormwater runoff, tidal fluctuations, propeller wash).

### *EPA Response (11/19/2021)*

The additional text in the Revised SRASP implies that the riverbank remedy will only address erosion. EPA notes that removal and/or capping of contaminated soils may be required. Provide this clarification in future documents.

### **EPA Specific Comment 17a (10/22/2021)**

**Section 4.1.1 HVS Stormwater Sampling Methodology for City Outfall Basins, pages 4-2 and 4-3:**

The Greyline Stingray 2.0 measures water level and velocity, and flow and volume are calculated using measured or assumed cross-sectional geometry of flow. Revise the text to specify how flow geometry will be determined and used to calculate flow and volume.

### *SIB Group Response (11/11/2021)*

This discussion in Section 4.1.1. has been moved to Section 4.1.5 as follows: A Pulsar Measurement Greyline Stingray 2.0 water-level-velocity sensor will also be incorporated into the stormwater sampling program in the city outfall basins to continuously measure water levels and velocities. These parameters will be converted to flow and volume using the cross-sectional geometry of the flow in the pipe during storm events as well as during the entire wet and dry seasons.

### *EPA Response (11/19/2021)*

The equations presented in Section 4.1.5 are incorrect for calculating flow and volume. The first equation ( $Q = \pi * D^2 / 4 * v$ ) is only applicable at full pipe flow, which is not expected to occur in stormwater discharge. The geometry of partial pipe flow in circular pipes is more complicated and the equation to calculate cross-sectional area is different if the flow is less than or greater than half full. Software packages for flow measurements may automate the calculation of cross-sectional area based on the diameter of the pipe and depth of flow. Open channel hydraulics text should be reviewed to determine the cross-sectional flow area (A) that can be used to calculate flow (Q) using the measured velocity (v) by:  $Q = A * v$ .

The second equation ( $Volume = \pi * r^2 * D$ ) is unclear. The total volume is calculated by integrating flow over time. For discrete flow measurements ( $Q_i$ ) measured at time increments ( $t_i$ ), the total volume can be calculated by:

$$Volume = \sum_{i=1}^n Q_i * t_i$$

Provide corrections and clarifications in future documents.

### **EPA Specific Comment 18 (10/22/2021)**

**Section 4.1.2.1.3 Particulate Phase Concentration, page 4-5:** Revise the units for the results of the calculation presented in Section 4.1.2.1.3. The resulting units of the calculation presented should be picograms per milligram (pg./mg) and not micrograms per liter (as indicated on the right side of the equation) or pg. to proton masses (as indicated in the fourth bullet point below the calculation). The discussion of proton masses in the fourth bullet is unclear and does not appear relevant to the equation that is presented.

### *SIB Group Response (11/11/2021)*

The equation has been updated accordingly.

### *EPA Response (11/19/2021)*

The units in the result of the equation in Section 4.1.2.1.2 was incorrectly changed to pg/mg and should be revised to pg/L (consistent with the Draft SRASP). The equation presented in Section 4.1.2.1.3 appears to be missing a division symbol and should be revised. Provide revisions in future documents.

### **EPA Specific Comment 23a (10/22/2021)**

**Table 2-1 Summary of Data Gaps and Proposed Data Collection and Table 3-1 Summary of Stormwater System Sampling Activities Locations:** Revise Table 3-1 to identify the number of in-line sediment traps and stormwater solids grab samples that will be collected at each manhole location.

*SIB Group Response (11/11/2021)*

Table 3-1 has been updated with the number of in-line sediment trap and manual grab samples to be collected at each manhole location.

*EPA Response (11/19/2021)*

EPA notes that the column header for Collection Method also incorrectly includes the text Sample Frequency in Table 3-1. Revise as appropriate in future documents.